

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1.-30. (cancelled).

31. (previously presented): An image read-out method of obtaining an image signal bearing thereon image information by use of a stimuable phosphor sheet having a layer of stimuable phosphor which emits stimulated emission in proportion to the stored energy of radiation upon exposure to stimulating light and a solid image sensor having a photoconductive material layer which exhibits electric conductivity upon exposure to the stimulated emission from the stimuable phosphor sheet and by scanning with stimulating light a stimuable phosphor sheet which has been exposed to radiation and has stored thereon an image, causing the photoconductive material layer to be exposed to stimulated emission emitted from the stimuable phosphor sheet upon exposure to the stimulating light, and detecting electric charges generated in the photoconductive material layer upon exposure to the stimulated emission by applying an electric field to the photoconductive material layer, wherein the improvement comprises the steps of using a solid image sensor whose photoconductive material layer also exhibits electric conductivity upon exposure to recording light bearing thereon image information or momentary light emitted from the stimuable phosphor layer upon exposure to the recording light,

projecting the recording light onto the stimuable phosphor sheet while applying an electric field to the photoconductive material layer, and

detecting charges generated in the photoconductive material layer when the recording light or the momentary light impinges upon the photoconductive material layer, thereby obtaining a preliminary read-out image signal bearing thereon image information, wherein

a solid image sensor in which a pair of electrode layers are provided on opposite sides of the photoconductive material layer and the electrode of one of the electrode layers is divided into a stripe electrode comprising a plurality of line electrode elements arranged in a row be used, and

electric charges generated in the photoconductive material layer when the recording light or the momentary light impinges upon the photoconductive material layer are detected by line electrode elements of said one electrode layer, and

wherein a solid image sensor in which the electrode of the other electrode layer is also divided into a stripe electrode comprising a plurality of line electrode elements arranged in a row, each extending to intersect the line electrode elements of said one electrode layer is used, and

electric charges generated in the photoconductive material layer when the recording light or the momentary light impinges upon the photoconductive material layer is detected also by line electrode elements of said the other electrode layer.

32.-33. (canceled).

34. (previously presented): An image read-out system comprising a stimulating light source which emits stimulating light,

a stimulating light scanning means which causes the stimulating light emitted from the stimulating light source to scan a stimuable phosphor sheet having a layer of stimuable phosphor which emits stimulated emission in proportion to the stored energy of radiation upon exposure to the stimulating light,

a solid image sensor having a photoconductive material layer which exhibits electric conductivity upon exposure to the stimulated emission from the stimuable phosphor sheet,

an electric voltage imparting means which imparts an electric voltage to the photoconductive material layer of the solid image sensor to apply an electric field to the photoconductive material layer, and

an image signal obtaining means which detects electric charges generated in the photoconductive material layer of the solid image sensor when the stimuable phosphor sheet is exposed to the stimulating light and stimulated emission emitted from the stimuable phosphor sheet impinges upon the photoconductive material with an electric field applied to the photoconductive material layer, and detects an image signal representing an image stored on the stimuable phosphor sheet, wherein the improvement comprises that

the photoconductive material layer of the solid image sensor also exhibits electric conductivity upon exposure to recording light bearing thereon image information or momentary light emitted from the stimuable phosphor layer upon exposure to the recording light, and

there is provided a preliminary read-out image signal obtaining means which obtains a preliminary read-out image signal bearing thereon image information by detecting charges recording light or the momentary light impinges upon the photoconductive material layer, wherein

the solid image sensor is provided with a pair of electrode layers on opposite sides of the photoconductive material layer, each having an electrode,

the electrode of one of the electrode layers is divided into a stripe electrode comprising a plurality of line electrode elements arranged in a row, and

the preliminary read-out image signal obtaining means detects electric charges generated in the photoconductive material layer when the recording light or the momentary light impinges upon the photoconductive material layer by line electrode elements of said one electrode layer, and

the electrode of the other electrode layer is also divided into a stripe electrode comprising a plurality of line electrode elements arranged in a row, each extending to intersect the line electrode elements of said one electrode layer, and

the preliminary read-out image signal obtaining means detects electric charges generated in the photoconductive material layer when the recording light or the momentary light impinges upon the photoconductive material layer be detected also by line electrode elements of said the other electrode layer.

35.-58. (cancelled).

59. (previously presented): An image readout method as defined Claim 31, wherein:

said stimuable phosphor sheet has a layer of stimuable phosphor which is stimulated by stimulating light in a wavelength range of not shorter than 600nm and emits stimulated emission in a wavelength range of not longer than 500nm,

said solid image sensor has a photoconductive material layer whose major component is a-Se,

wherein said electric field generates an avalanche amplification effect in the photoconductive material layer, and detecting electrical charges generated in the photoconductive material layer occurs simultaneously with the avalanche effect.

60. (new). The system of claim 34, wherein the preliminary read out signal obtaining means operates concurrently with application of an electric field applied with the recording light or the momentary light.

61. (new). The method of claim 31, wherein a signal for activating line electrode elements of at least one of the pair of electrode layers are controlled to only partially overlap activation of line electrode elements disposed next to each other.

62. (new). The system of claim 34, wherein a signal for activating line electrode elements of at least one of the pair of electrode layers are controlled to only partially overlap activation of line electrode elements disposed next to each other.

63. (new): An image read-out method of obtaining an image signal bearing thereon image information by use of a stimuable phosphor sheet having a layer of stimuable phosphor which emits stimulated emission in proportion to the stored energy of radiation upon exposure to stimulating light and a solid image sensor having a photoconductive material layer which exhibits electric conductivity upon exposure to the stimulated emission from the stimuable phosphor sheet and by scanning with stimulating light a stimuable phosphor sheet which has been exposed to radiation and has stored thereon an image, causing the photoconductive material layer to be exposed to stimulated emission emitted from the stimuable phosphor sheet upon exposure to the stimulating light, and detecting electric charges generated in the photoconductive

material layer upon exposure to the stimulated emission by applying an electric field to the photoconductive material layer, wherein the improvement comprises the steps of

using a solid image sensor whose photoconductive material layer also exhibits electric conductivity upon exposure to recording light bearing thereon image information,

projecting the recording light onto the stimuable phosphor sheet while applying an electric field to the photoconductive material layer, and

detecting charges generated in the photoconductive material layer when the recording light impinges upon the photoconductive material layer, thereby obtaining a preliminary read-out image signal bearing thereon image information, wherein

the solid image sensor, in which a pair of electrode layers are provided on opposite sides of the photoconductive material layer and the electrode of each of the electrode layers is divided into a stripe electrode comprising a plurality of line electrode elements arranged in a row, is used, and

electric charges generated in the photoconductive material layer when the recording light impinges upon the photoconductive material layers are detected by the line electrode elements of one of the electrode layers and the line electrode elements of the other of the electrode layers.

64. (new): An image read-out system comprising

a stimulating light source which emits stimulating light,

a stimulating light scanning means which causes the stimulating light emitted from the stimulating light source to scan a stimuable phosphor sheet having a layer of stimuable phosphor which emits stimulated emission in proportion to the stored energy of radiation upon exposure to the stimulating light,

a solid image sensor having a photoconductive material layer which exhibits electric conductivity upon exposure to the stimulated emission from the stimuable phosphor sheet,

an electric voltage imparting means which imparts an electric voltage to the photoconductive material layer of the solid image sensor to apply an electric field to the photoconductive material layer, and

an image signal obtaining means which detects electric charges generated in the photoconductive material layer of the solid image sensor when the stimuable phosphor sheet is exposed to the stimulating light and stimulated emission emitted from the stimuable phosphor sheet impinges upon the photoconductive material with an electric field applied to the photoconductive material layer, and detects an image signal representing an image stored on the stimuable phosphor sheet, wherein the improvement comprises that

the photoconductive material layer of the solid image sensor also exhibits electric conductivity upon exposure to recording light bearing thereon image information, and

there is provided a preliminary read-out image signal obtaining means which obtains a preliminary read-out image signal bearing thereon image information by detecting charges generated in the photoconductive material layer when the recording light impinges upon the photoconductive material layer, wherein

the solid image sensor is provided with a pair of electrode layers on opposite sides of the photoconductive material layer, each having an electrode,

the electrode of each of the electrode layers is divided into a stripe electrode comprising a plurality of line electrode elements arranged in a row, and

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the preliminary read-out image signal obtaining means detects electric charges generated in the photoconductive material layer when the recording light impinges upon the photoconductive material layer by the line electrode elements of one of the electrode layers and the line electrode elements of the other of the electrode layers.

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AMENDMENTS TO THE DRAWINGS

As required by the Office Action dated April 6, 2004, Applicants submit new annotated marked up drawings (based on the drawings filed with the Preliminary Amendment on November 18, 2003), as well as replacement drawings (based on the replacement drawings filed with the Preliminary Amendment on November 18, 2003). The Examiner is requested to acknowledge receipt of these drawings.

Attachment: Annotated Marked-Up Drawings (7 sheets)
Replacement Sheets (7 sheets)